WHAT IS CLAIMED IS:

1. A field programmable network application specific integrated circuit, comprising:

a media access controller configured to transmit and receive network data; and

a programmable logic core having an array of dynamically configurable arithmetic logic units, said programmable logic core configured to interface with said media access controller and implement at least one application level function capable of generating meta-data, wherein said media access controller and said programmable logic controller form at least a portion of a MP-block.

2. The field programmable network application specific integrated circuit as recited in Claim 1 wherein said programmable logic core may be programmed while said at least one application level function is executing.

3. The field programmable network application specific integrated circuit as recited in Claim 1 further comprising:

a data interconnect subsystem configured to transmit and receive said network data from said MP-block; and

a function master subsystem configured to receive said meta-

data from said MP-block and dynamically program said programmable logic units.

4. The field programmable network application specific integrated circuit as recited in Claim 3 wherein said data interconnect subsystem is further configured to transmit and receive said network data from a host system.

5. The field programmable network application specific integrated circuit as recited in Claim 3 wherein said function master subsystem is further configured to transmit said meta-data to a host system and capable of receiving programming instructions from said host system.

6. The field programmable network application specific integrated circuit as recited in Claim 3 wherein said function master subsystem is capable of programming said programmable logic core based upon said meta-data.

7. The field programmable network application specific integrated circuit as recited in Claim 3 wherein said function master subsystem is capable of programing said programmable logic core based upon content of said network data.

8. The field programmable network application specific integrated circuit as recited in Claim 1 wherein said media access controller is configured to transmit and receive network data via a physical interface device.

9. The field programmable network application specific integrated circuit as recited in Claim 1 wherein said at least one application level function is selected from the group consisting of:

an adaptive pulse code modulation (ADPCM),

an Internet Protocol encryption,

an Internet Protocol decryption,

a content based addressing,

a network-address translation (NAT),

a validation of packets,

a protocol packetization, and

a quality-of-service metrics.

10. The field programmable network application specific integrated circuit as recited in Claim 1 wherein said programmable logic core includes a management interface configured to control and manage said media access controller.

11. A method of operating a field programmable network application specific integrated circuit, comprising:

configuring a programmable logic core, having an array of dynamically configurable arithmetic logic units, to interface with a media access controller and implement at least one application level function capable of generating meta-data, wherein said programmable logic core and said media access controller form at least a portion of a MP-block;

transmitting and receiving network data employing said media access controller; and

processing said network data as a function of said at least one application level function.

12. The method as recited in Claim 11 further comprising programming said programmable logic core while executing said at least one application level function.

13. The method as recited in Claim 11 further comprising:

transmitting and receiving network data from said MP-block with a data interconnect subsystem;

generating meta-data as a function of said at least one application level function;

receiving said meta-data from said MP-block with a function master subsystem; and

dynamically programing said programmable logic units.

14. The method as recited in Claim 13 wherein said transmitting and receiving further comprises transmitting and receiving said network data from a host system.

15. The method as recited in Claim 13 further comprising transmitting said meta-data to a host system and receiving programming instructions from said host system.

16. The method as recited in Claim 13 wherein said dynamically programming further comprises programming said programmable logic core based upon said meta-data.

17. The method as recited in Claim 13 wherein said dynamically programming further comprises programing said programmable logic core based upon content of said network data.

18. The method as recited in Claim 11 wherein said media access controller transmits and receives network data via a physical interface device.

19. The method as recited in Claim 11 wherein said at least one application level function is selected from the group

consisting of:

an adaptive pulse code modulation (ADPCM),

an Internet Protocol encryption,

an Internet Protocol decryption,

a content based addressing,

a network-address translation (NAT),

a validation of packets,

a protocol packetization, and

a quality-of-service metrics.

20. The method as recited in Claim 11 further comprising managing and controlling said media access controller via a management interface of said programable logic core.

21. A field programmable router application specific integrated circuit, comprising:

a plurality of MP-blocks, including:

a media access controller that transmits and receives network data via a physical interface device, and

a programmable logic core having an array of dynamically configurable arithmetic logic units, said programmable logic core interfaces with said media access controller and implements at least one application level function capable of generating meta-data;

an interconnect MUX coupled to each of said plurality of MP-blocks and configured to switch said network data between ones of said plurality of MP-blocks; and

a master subsystem configured to receive said meta-data from each of said plurality of MP-blocks and control said interconnect MUX to route said network data.

22. The field programmable router application specific integrated circuit as recited in Claim 21 wherein said programmable logic core may be programmed while said at least one application level function is executing.

23. The field programmable router application specific integrated circuit as recited in Claim 21 wherein said master subsystem further includes a master programmable logic core having an array of dynamically configurable arithmetic logic units, said master programmable logic core configured to receive said meta-data and implement at least one router application level function.

24. The field programmable router application specific integrated circuit as recited in Claim 21 wherein said master subsystem is further configured to receive programming instructions from a host system.

25. The field programmable router application specific integrated circuit as recited in Claim 21 wherein said master subsystem is further configured to transmit said meta-data or network data to a host system.

26. The field programmable router application specific integrated circuit as recited in Claim 21 wherein said master subsystem is capable of programming each of said plurality of MP-blocks based upon said meta-data.

27. The field programmable router application specific integrated circuit as recited in Claim 21 wherein said master subsystem is capable of programing each of said plurality of MP-blocks based upon content of said network data.

28. The field programmable router application specific integrated circuit as recited in Claim 21 wherein said at least one router application level function is selected from the group consisting of:

a content based routing,

a protocol de-packetization,

a protocol stack control, and

a load balancing.

29. The field programmable router application specific integrated circuit as recited in Claim 21 wherein said at least one application level function is selected from the group consisting of:

an adaptive pulse code modulation (ADPCM),

an Internet Protocol encryption,

an Internet Protocol decryption,

a network-address translation (NAT),

a validation of packets,

a protocol packetization, and

a quality-of-service metrics.

30. The field programmable router application specific integrated circuit as recited in Claim 21 wherein said programmable logic core includes a management interface configured to control and manage said media access controller.

31. A field programmable video phone application specific integrated circuit, comprising:

a first, second and third MP-block, including:

a media access controller that transmits and receives network data via a physical interface device, and

a programmable logic core having an array of dynamically configurable arithmetic logic units, said programmable logic core interfaces with said media access controller and implements at least one application level function capable of generating meta-data;

an interconnect MUX coupled to said first, second and third MP-blocks and configured to switch said network data between said first MP-block and said second and third MP-blocks; and

a master subsystem configured to receive said meta-data, control said interconnect MUX to route at least a portion of said network data containing audio between said first MP-block and said second MP-block, and control said interconnect MUX to route at least a portion of said network data containing video between said first MP-block and said third MP-block.

32. The field programmable video phone application specific integrated circuit as recited in Claim 31 wherein said first MP-block is further configured to split said network data into an audio portion and a video portion, and recombine said audio portion

and video portion.

33. The field programmable video phone application specific integrated circuit as recited in Claim 31 wherein said second MP-block is further configured to compress and decompress audio.

34. The field programmable video phone application specific integrated circuit as recited in Claim 31 wherein said third MP-block is further configured to compress and decompress video.

35. The field programmable video phone application specific integrated circuit as recited in Claim 31 wherein said programmable logic core may be programmed while said at least one application level function is executing.

36. The field programmable video phone application specific integrated circuit as recited in Claim 31 wherein said master subsystem further includes a master programmable logic core having an array of dynamically configurable arithmetic logic units, said master programmable logic core receives said meta-data and implements at least one video phone application level function.

37. The field programmable video phone application specific integrated circuit as recited in Claim 31 wherein said master

subsystem is further configured to receive programming instructions from a host system.

38. The field programmable video phone application specific integrated circuit as recited in Claim 31 wherein said master subsystem is further configured to transmit said meta-data or network data to a host system.

39. The field programmable video phone application specific integrated circuit as recited in Claim 31 wherein said master subsystem is capable of programming each of said first, second and third MP-blocks based upon said meta-data or upon content of said network data.

40. The field programmable video phone application specific integrated circuit as recited in Claim 31 wherein said at least one video phone application level function is selected from the group consisting of:

a content based routing,

a protocol de-packetization, and

a H.323 protocol stack control.

41. The field programmable video phone application specific integrated circuit as recited in Claim 31 wherein said at least one

application level function is selected from the group consisting of:

an adaptive pulse code modulation (ADPCM),

an encryption/decryption,

a video compression/decompression,

a network-address translation (NAT),

a validation of packets,

a protocol packetization, and

a protocol de-packetization.

42. The field programmable video phone application specific integrated circuit as recited in Claim 31 wherein said programmable logic core includes a management interface configured to control and manage said media access controller.